Cultural Resource Management and the Necessity of Cultural and Natural Resource Collaboration

Roderick Kevin Donald, Kara Kusche, and Collin Gaines
College of Humanities, University of Arizona, and All-Terrain Ethno/Archaeological Services, Benson, AZ

Abstract—*Cultural Resource Specialists function as interpreters of past and present human behavior through the analysis of cultural/natural resources vital to human ecological sustainability. When developing short and long-term preservation strategies for cultural resources, it is more current and innovative for Cultural Resource Specialists to think of past human populations as occupiers of broad ranges of landscapes and not limit our interpretive spheres of preservation and conservation to site-specific locales only. Cutting edge Cultural Resource Specialists are expanding their knowledge through integrated research, public interaction, and state-of-the-art preservation techniques. The current paper and presentation are a contribution to this expansion.*

Justification for Taking Steps to Develop a Conceptual Models of Collaborative Efforts Between Cultural and Natural Resource Specialists

The primary purpose of this paper is to present some preliminary ideas and propose to make a scientific argument for the development of steps toward a *methodology* for the necessity of collaborative efforts between Cultural and Natural Resource Specialists as participants in large-scale preservation and conservation strategies. Preliminary ideas for the creation of this argument were presented at the Madrean Archipelago Conference in Tucson, Arizona, in May of 2004. At the conference, two areas related to collaboration and interdisciplinary study were highlighted as integral subjects that must be discussed in the context of establishing a methodological case for the necessity of collaborative efforts: 1. Natural Resource Regulations and the Cultural Resource Specialist and 2. The Collaboration and Application of Natural and Cultural Resource Data-The Creation of a Professional Role.

Natural Resource Regulations and the Cultural Resource Specialist, Part I

Throughout the history of monitoring culturally sensitive areas, the Cultural Resource Specialist's work has been influenced by an array of natural resource regulations such as: the Endangered Species Act, 1973, amended 1982; the Fish and Wildlife Coordination Acts, 1958 and 1980; the Migratory Bird Treaty Act, 1974; the Clean Water Act; Executive Order 11900 (Protection of Wetlands); the Clean Air Act as well as the National Environmental Policy Act of 1969 ([1]). The National Environmental Policy Act (NEPA) of 1969 created a specific context in which anthopological social knowledge was to be applied by agencies in determining whether to prepare an Environmental Impact Statement (EIS) ([2]). The EIS document consists of specific natural and cultural studies that are used collectively as collaborative and interdisciplinary studies of conditions within the *affected area*. The EIS must also assess impacts and consider policy alternatives. The EIS document is created to inform agency decision makers and the public of the intended *action* and its *effects* within the project *area*. Principally speaking, the EIS document's purpose is to provide better scientific information to agency decision-makers, which will lead to more environmentally and socially conscious decisions. However, in the application of better scientific information the relationship between scientific knowledge and its application is much more complex.

NEPA makes necessary certain knowledge of resource conditions to direct and evaluate the effectiveness of cultural and natural resource conservation programs. This formal evaluation is regulated by the Section 106 Compliance process. This approach has placed Cultural Resource Specialists in an advantageous position to assist in the development of Integrated Resource Management Plans (IRMP) and *large-scale* conservation programs. The people who were living here first used large landscapes (i.e., watersheds) in establishing themselves as residents. Current cultural resource strategies of preservation are site-specific, with little regard for the preservation of adjacent large-scale geographical areas. Some Cultural Resource Specialists might understand the contradiction of archaeological site-specific preservation and large-scale residential land use as a reflection of explaining more accurately a "social reality" of how people truly lived.

NEPA provides a distinctive opportunity (as well as a legal mandate) for considering the uses of cultural and natural knowledge in the policy process and the decision-making process of public agencies.

The Development of a Professional Role—Philosophical Issues and the Basis of Collaboration and Application of Natural and Cultural Resource Data Part II

The second part/answer to this question is even more complex and a portion of the complexity under scrutiny here lay someplace within an individual scientist who is critically reflective of his/her own philosophical and socio-political positions, their internal and psychological *bias*, if you will (and the assertion of that *bias*), with respect to varying degrees of preservation/development application practices. If a Natural or Cultural Resource Specialist has a primary philosophy of conservation and preservation one would expect to see a reflection of this philosophy in their actions. For example, one would expect to see less emphasis on development projects and more emphasis on preservation projects ([3]).

The problem however, could be that presently little is being done by either Cultural or Natural Resource Specialists in the way of developing field and analytical methods to address the *interdisciplinary nature* of cultural and natural scientific research data. Murray (1983) argues that policy makers perhaps don't always use social knowledge as well as they might or make better use of available knowledge, and Weaver (1985) argues that Resource Specialists (and particularly cultural resource specialists) "have not presented their findings in a manner …usable by other disciplines and by policy makers" (Weaver 1985:102). This is most likely due to the nature and development of methods of inquiry regarding cultural and natural resources. Expansion and improved knowledge can lead to conceptual convergences, whereas in the social sciences it tends to rather result "in a richer, more diverse picture of things" (Cohen and Weiss 1977:68).

Natural Resource Specialists tend to be more "thing-directed." Their methods revolve around the manipulation of these "things" (scientific units), which are assumed to persist through time. If these scientific units do change, they change into other things and can be studied as an evolutionary scientific unit. Cultural Resource Specialists are also "thing-directed." However, Cultural Resource Specialists are hampered by a shortcoming of the scientific method. "Things" in the context of cultural resource management have human behavior attached to them. Acting simultaneously as natural and social scientists, as Cultural Resource Specialists, we are unable to adequately apply the scientific method to human behavior and to transpose the human behavior associated with artifacts, features and sites into *purely* scientific units. This has been a curse and a blessing for cultural resource management and archaeology as a whole. The curse is that the discipline has suffered because it can not be viewed as a "pure" scientific discipline. The blessing is that human behavior can teach us about what others in the past have done and what we might do in the present and the future to sustain ecosystems in perpetuity ([4]).

Crafting a *professional role* to accompany the *technical role* for the application of this type of knowledge is critical in establishing a more holistic approach and application to resource management strategies geared towards *serious* consideration of *large scale* ecological preservation of landscapes. An effective methodological approach must have at its base the collaborative nature of natural and cultural resources to address the *contradiction of archaeological site-specific preservation and large-scale residential land use*. To my knowledge, Cultural Resource Specialists have yet to produce any specific methodology for Cultural and Natural Resource Specialists to collaborate and to concentrate on this contradiction. Collaboration is already taking place in the context of cultural resource management philosophy ([5]). The problem has been based, not so much on the lack of recognition of *collaborative landscape elements* by Cultural Resource Specialists, but the lack of recognizing the *meaning and application* of *collaborative landscape elements* of natural and cultural resource data. What evidently follows is a lack of understanding about the method-data relationship between cultural and natural resource specialists and the application of *collaborative landscape elements*. ([6]).

Cultural Resource Management Methodology and the Existing Presence of Collaborative Ideology

Many indigenous plant species have been identified as cultural resources through indigenous use (Bronitsky and Merrit 1986; Ciolek-Torrello 1995; Cordell 1997; Gumerman 1979; Mabry 1998; Huckell 1997). Within the Madrean Archipelago and the Tucson Basin some "phases" in the archaeological data suggest the *gathering* of specific medicinal plants. These harvesting practices are similar to horticulture but plants were allowed to remain in their natural habitat, which fostered their own growth. The subsistence pattern of gathering implies movement, constant movement away from overused gathering areas and the possibility of a strategy of rotation of gathering areas of specific medicinal and subsistence plants so as to allow them to regenerate and, subsequently, the gathering area could be used again for food production at a later time. In this context, not only should CRM Specialists consider the specific location of plants and archaeological sites, but they should also consider areas *in between* the archaeological sites and gathering areas. The significance and use of these "in between areas" are referred to here as "*archaeological landscapes*" and should be defined as a *collaborative element* and become a part of the preservation and conservation strategies (i.e., Collaborative Resources Inventories or CRIs) of natural and cultural resource specialists. The CRI could be included in existing Cultural Resource Inventories. A further step might be to create a Collaborative Resource Inventory (CRI) as part of the existing Cultural Resource Inventory (CRI).

Although current archaeological preservation strategies are site-specific, we know that people gathered water resources and plant resources from their adjacent and surrounding areas. What we haven't done is establish this known behavior as a criterion for analyzing archaeological data. It is no mistake that

early settlements in portions of the Madrean Archipelago, like the Tucson Basin, were near water sources like river confluences. We can also see clusters of archaeological sites within certain areas that maintain perennial water sources. Yet, what are we stuck on here: site specific preservation strategies? It is a known scientific fact that indigenous people were never completely isolated to the remnants of the visible sites we uncover and interpret. Site-specific preservation does not adequately mirror what we know about indigenous "social reality." An important question to ask here is *why are CRM strategies of preservation and conservation limited to site-specific management and not moving towards large-scale preservation of landscapes when there is scientific archaeological evidence that people were not always strictly confined to a specific site; physically or cognitively* (Stoffle 2001)?

One aspect of overcoming this oversight might be found in collaborative efforts with Natural Resource Specialists, who are concerning themselves with large-scale preservation of landscapes, via watersheds. Another aspect of overcoming this oversight is the reconsideration of *oral/ethnographic data* as a viable and reliable scientific data set that can be used for recognizing and establishing the validity of sacred sites and gathering areas (and the in between areas), for example, that are important to instituting *collaborative elements* and expanding the concept of landscapes beyond a mere naturalist or culturalist perspective (Stoffle 2001).

Conclusion

A Conceptual Model as a Basis for Collaborative Resources Inventories

The development of a conceptual model for cultural and natural resource collaboration has roots in the author's creative approach to the contradiction listed above as well as some fundamental roots in the National Parks Service's (NPS) "Crossing Boundaries in Park Management: Proceeding of the 11th Conference on Research and Resource Management in Parks and on Public Lands in 2001. One of the primary purposes of the conference was to promote multidisciplinary problem solving.

> "Contemporary experience with managing parks and outdoor recreation suggests that more integrated and synthetic approaches are needed, and that this will involve crossing multiple physical and perceptual boundaries. [There is a need to address] 1. the crossing of disciplinary boundaries-natural and social sciences must be more closely integrated…." (National Park Service).

Another prime directive of the conference was to promote their relatively new methodological approach called Cultural Landscapes Inventories (CLI's). CLI's are comprehensive inventories of all historically significant landscapes within the National Park System. CLI's are an evaluative inventory that can provide comprehensive documentation for cultural landscapes: including physical development, historical significance, and existing and historical characteristics. Some of these characteristics include *natural systems*, spatial organization, land use, vegetation, circulation, structures and views. CLI's can also assess the integrity and conditions of the *landscape*. According to the National Park Service (NPS), cultural landscapes are composed of four types: historic design, vernacular, historic sites, and ethnographic. CLI's are composed of a process of four levels (see figure 1).

Each level builds on the previous level to give an overall inventory of the specific research area and to provide a more comprehensive and collaborative approach to better stewardship of park resources via multidisciplinary problem solving.

The cultural model (and subsequent methods to include Collaborative Resource Inventories) which is partially derived from the CLI's in this study is composed of information related to four stages (see figure 2).

This cultural model (which promotes the use of Collaborative Resource Inventories) represents a uniform set of scientific assumptions regarding the importance of large-scale preservation strategies and multi-disciplinary problem solving. This cultural model is also supported by three salient and collaborative themes identified from the contents of the methodological information provided in the legal overview above. Each of these themes can be highlighted in the form of questions (see figure 3).

Much like the Cultural Landscape Inventories, the Collaborative Resource Inventory (CRI) is an initial methodological step in the direction of establishing an inventory methodology between Natural and Cultural Resource Specialists. This methodology is rooted in the legal history of conservation and preservation strategies presently employed on the Federal level and currently manifesting itself as part of the National Park Service's Cultural Landscape Inventories.

Cultural resource specialists function as interpreters of past and present human behavior through the analysis of cultural/natural resources vital to human ecological sustainability. When developing short and long-term preservation strategies for cultural resources, it is more current and innovative for cultural resource specialists to think of past human populations as occupiers of broad ranges of landscapes and not limit our interpretive spheres of preservation and conservation to site-specific locales only. Cutting edge Cultural Resource Specialists are expanding their knowledge through integrated research, public interaction and state-of-the-art preservation techniques. The current paper and presentation are a contribution to this expansion. Cultural Resource Specialists must begin to articulate the similarities (and differences) of Cultural and Natural Resource Specialists and to use their collaborative context to contribute, scientifically, to *landscape* preservation strategies. We must begin to combine our scientific efforts in an endeavor to confront, collaboratively, the future of the overall innovative and emergent management strategies required to meet ever-increasing demands and impacts on the physical and social environment by humans and non-humans on significant landscapes so that future generations may benefit from these landscapes in perpetuity.

Cultural Landscape Inventory Methodology: A Four Level Process

Level 0: The Park reconnaissance survey-identifies the scope of landscapes and component landscapes in a particular park, existing and needed information about the resources, and immediate threats to the resources, and establishes priorities for Level I inventory.

Level 1: The Landscape reconnaissance survey-identifies existing and needed information for a specific landscape or component landscape in a park and establishes priorities for Level II inventory. A site visit is conducted and an initial evaluation is done of the significance and character of the landscape or component landscape.

Level II: The Landscape analysis and evaluation-defines and landscape characteristics and their associated features of a specific landscape or component landscape. Both existing and historic conditions are analyzed to determine contributing character-defining features. National Register eligibility is evaluated and integrity and condition assessed. Landscapes at this level are on, or eligible for, the National Register, or are otherwise treated as cultural resources.

Level III: The Feature Inventory and assessment-provides an inventory and evaluation of a physical feature identified in Level II as contributing to the significance of a landscape or component landscape.

Source: NPS-Crossing Boundaries Among Disciplines to Share Information-Proceeding of the 11th Conference on Research and Resource Management

Figure 1—NPS cultural landscape inventory methods.

Stage 1—The understanding of the method-data relationship and the experience of the CRM specialists that leads to cultural resource management decisions of conservation and preservation recommendations.

Stage 2—Conservation and preservation experience which would allow CRM specialists to come to terms with the problems that may have led to their recommendations, choices that may have led to their conditions of the decision-making environment and the *modes of adaptation* to their conditional environment of decision-making.

Stage 3—Achieving a successful trajectory to re-establish and re-define conservation and preservation management strategies as comprehensive, long-term, and large-scale with respect to overall cultural and natural *landscape* use.

Stage 4—Achieving an integration of scientific knowledge gained from their collaborative experiences as adjunct to maintaining conservation and preservation autonomy and control over conservation and preservation decisions that directly or indirectly conflict with "common-sense" decisions (ie. Moving native peoples off their traditional lands to establish a NPS area commemorating traditional native peoples and their traditional heritage) or large-scale "development" projects.

Figure 2—Interpretive and applicable developmental stages as steps to the establishment of Collaborative Landscape Inventories (CLI's).

Theme 1—Research Methodology and Design

Collaborative Resource Inventories:

Question: What archaeological sites are associated with major migratory paths, areas with endangered flora/fauna, or known plants used by indigenous peoples either for subsistence or medicinal purposes, or both?

Theme 2—Research Findings

Collaborative Resource Inventories:

Question: What is the "significance" and "determination" of the project area as a valuable ecological resource requiring long-term and large-scale landscape preservation strategies?

Theme 3—Data Representation and Results

Collaborative Resource Inventories:

Question: What is the "significance" and "determination" of the relationship between natural and cultural resources within the project area?

Figure 3—Some suggestions of CLI's (Collaborative Landscape Inventories) concerning methodology, research, and results.

Notes

[1] The holistic perspective means that no single aspect of a community can be understood unless its relations to other aspects of the community's total way of life are explored. The comparative perspective takes into account the enormous diversity in space and time of human cultures. This diversity means that any general theories might have about human cultures must be tested against other cross-cultural data and must take into account information from a wide range of societies. The perspective of cultural relativity suggests that no culture is inherently superior or inferior to any other.

[2] Please see Volume 40, Chapter V, Article 1500.8 of The Code of Federal Regulations ([40 C.F.R. 1500.8] [1988]).

[3] The Archaeology Conservancy functions much the same way as The Nature Conservancy. They seek to prioritize potentially endangered sites with the intent of purchasing the sites, leaving them *in situ* for future students of archaeology to study in their natural form rather than studying the artifacts left over after data recovery. Local conservation organization like the Sonoran Institute and the Rincon Institute will play important roles in the future of large-scale preservation. It is important to note that the Archaeology Conservancy mostly deals more with issues related to private landowners.

[4] There is a belief among some Cultural Resource Specialists that there can be a balance between "pure" preservation and "restrictive" development, usually encompassed in the rhetoric of "management strategies." However, it is *development* that fuels many local, regional, and national archaeological projects. So, even if a cultural resource specialists believes in preservation on a large scale, there is usually little in the way of legal apparati at her/his exposure to exercise this belief.

[5] Please see the National Park Service's Cultural Landscapes Inventory Database, which includes park reconnaissance surveys, landscape reconnaissance surveys, landscape analysis and evaluations, and feature inventory and assessment data. This is one of the closest models of data collaboration that encompasses strategies that are argued for in this paper. When dealing with gathering information on the level of entire ecosystems, I'm not sure that biological/natural resource specialists have an easier time.

[6] For example, an organization like Desert Southwest Cooperative Ecosystems Studies Unit (founded in 2002) is one of the leading national groups whose awareness of the importance of collaborative studies is reflected in their "focus on multidisciplinary problem-solving." Collaborative landscape elements are explained in more detail below. An elaboration on this idea can be found in Stoffle et.al (2001) and the Bureau of Applied Research in Anthropology (BARA) at the University of Arizona.

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